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## ORIGINAL ARTICLE

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# Admission avoidance in tonsillitis and peritonsillar abscess: A prospective national audit during the initial peak of the COVID-19 pandemic

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**Abstract**

**Objectives:** To report changes in practice brought about by COVID-19 and the implementation of new guidelines for the management of tonsillitis and peritonsillar abscess (PTA), and to explore factors relating to unscheduled re-presentations for patients discharged from the emergency department (ED).

**Design:** Prospective multicentre national audit over 12 weeks from 6 April 2020.

**Setting:** UK secondary care ENT departments.

**Participants:** Adult patients with acute tonsillitis or PTA.

**Main outcome measures:** Re-presentation within 10 days for patients discharged from the ED.

**Results:** 83 centres submitted 765 tonsillitis and 416 PTA cases. 54.4% ( $n = 410$ ) of tonsillitis and 45.3% (187/413) of PTAs were discharged from ED. 9.6% (39/408) of tonsillitis and 10.3% (19/184) of PTA discharges re-presented within 10 days, compared to 9.7% (33/341) and 10.6% (24/224) for those admitted from ED. The subsequent admission rate of those initially discharged from ED was 4.7% for tonsillitis and 3.3% for PTAs.

IV steroids and antibiotics increased the percentage of patients able to swallow from 35.8% to 72.5% for tonsillitis ( $n = 270/754$  and  $441/608$ ) and from 22.3% to 71.0% for PTA ( $n = 92/413$  and  $265/373$ ).

77.2% of PTAs underwent drainage ( $n = 319/413$ ), with no significant difference in re-presentations in those drained vs not-drained (10.6% vs 9.5%,  $n = 15/142$  vs  $4/42$ ,  $P = .846$ ).

Univariable logistic regression showed no significant predictors of re-presentation within 10 days.

**Conclusions:** Management of tonsillitis and PTA changed during the initial peak of the pandemic, shifting towards outpatient care. Some patients who may previously have been admitted to hospital may be safely discharged from the ED.

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## 1 | INTRODUCTION

The SARS-CoV-2 (COVID-19) pandemic led to necessary changes in the management of common ENT emergency presentations internationally, including tonsillitis and peritonsillar abscess (quinsy, PTA), two of the most common emergency presentations to ENT.<sup>1</sup> It has been demonstrated that COVID-19 infection leads to high viral titres in the nasal and oral cavities,<sup>2</sup> with virus transmission thought to be predominantly via aerosols or droplet formation.<sup>3,4</sup> Aspects of the management of tonsillitis and PTA, including oral examination, PTA drainage and flexible nasendoscopy, were considered to represent a potential route of transmission of COVID-19.<sup>5,6</sup>

In March 2020, new UK guidelines were issued for the management of tonsillitis and PTA presenting to emergency departments (ED), in light of COVID-19.<sup>7</sup> There were no accepted national guidelines in the UK for the management of tonsillitis or PTA prior to COVID-19 for comparison. The major shifts in practice proposed were as follows: the avoidance of oral examination; the routine discharge of patients who could swallow fluids and medications; the routine administration of intravenous (IV) medications to effect this; and the avoidance of PTA drainage if possible. This advice aimed to minimise the personnel involved in managing the acute presentation, reduce oral instrumentation, and to reduce admission rates, thus, preserving hospital bed capacity for the anticipated COVID-19 demand.

The implementation of these relatively untested guidelines resulted in significant changes to established practices that had been shown to be safe over many years. This article aims to:

1. Report the findings of a 12-week prospective audit of acute tonsillitis and PTA care, conducted during the initial peak of COVID-19 in the UK.
2. Explore factors relating to unscheduled re-presentation to hospital in tonsillitis and PTA patients discharged from the ED.

## 2 | METHODS

The protocol for this study was published in advance at <https://entintegrate.co.uk>. This manuscript has been prepared with reference to the STROBE checklist for cohort studies.<sup>8</sup>

### 2.1 | Ethical considerations

The Health Research Authority decision tool determined the study design to fall under the remit of audit, and so no ethical approval was required (available at: <http://www.hra-decisiontools.org.uk/research/>).

### Key Points

1. Fewer patients presented to the emergency department (ED) with tonsillitis and peritonsillar abscess (PTA) during the COVID-19 pandemic.
2. IV antibiotics and steroids given in the ED led to a two-fold-threefold increase in the proportion of patients able to swallow, to over 70%.
3. Approximately half of tonsillitis and PTA patients were discharged from the ED, without an increase in later admission.
4. Nearly, a quarter of patients with suspected PTA had no drainage performed, and re-presentation rates were not higher in this group
5. There were no significant predictors of re-presentation in those discharged from ED.

### 2.2 | Study design and setting

A national prospective audit of the hospital management of tonsillitis and PTA by UK secondary care ENT departments was conducted, in parallel to an audit of acute epistaxis emergency care.<sup>9</sup> The audit was developed and run by INTEGRATE, the UK ENT Trainee Research Network. All UK ENT departments were invited to participate via advertisement, and registration with local audit and Clinical Governance Departments was required. Sites could open at any point during the prospective data collection period.

### 2.3 | Participants

Consecutive patients with tonsillitis and PTA, aged 18 years and older, and referred to ENT secondary care, were eligible for inclusion, whether managed by telephone advice or face-to-face review.

### 2.4 | Data collection

Eligible cases were identified over a 12-week period, between 6 April 2020 and 29 June 2020. Each case was followed-up for 10 days. A standardised electronic case report form was created using Excel software (Microsoft Corporation, Washington, USA) and made available online (Supplementary material), incorporating data validation to encourage valid data entry and completeness. Data were initially held offline at each centre, and patient identifiable data were removed prior to submission to the project management team. Data were collected on: patient demographics; COVID-19 status; reviewing clinicians; IV medications and their effect; discharge medications; examinations performed; and PTA drainage.

## 2.5 | Interim reports

The 12-week audit was divided into three 4-week periods. Two interim reports were produced (after periods 1 and 2) allowing for rapid feedback of management and preliminary outcomes to the UK ENT community. Both interim reports were disseminated electronically via ENTUK mailouts within 10 days of data submission and hosted online at <https://entuk.org> and <https://entintegrate.co.uk>.

## 2.6 | Data analysis

The primary outcome was unscheduled re-presentation to hospital within 10 days for ED discharges. This intended to assess the safety of the lower rates of admission anticipated.

Univariable binary logistic regression analysis was used to identify significant determinants of the primary outcome measure. The level of significance was set at  $< 0.05$  with Bonferroni corrections applied, where applicable. Analysis was performed using R statistical software (R Foundation, Vienna, Austria).

## 3 | RESULTS

### 3.1 | Centres

Data were submitted by 83/86 UK centres who registered to take part (72 in England, 5 in Scotland, 3 in Wales and 3 in Northern Ireland) covering a total of 905 weeks. 2/83 centres submitted data covering the first period only. The dates centres opened are shown in Figure 1, alongside the median rates of tonsillitis and PTA cases referred per centre per week.

## 3.2 | Submissions

1,181 cases met the prespecified eligibility criteria across the three periods (765 tonsillitis cases [276, 212 and 277 cases, respectively] and 416 PTA cases [131, 129 and 156 cases, respectively]). Characteristics of both populations are shown in Tables 1 and 2. Data completeness was 99.2% ( $n = 592/597$ ) of cases having data for the primary outcome.

## 3.3 | COVID-19

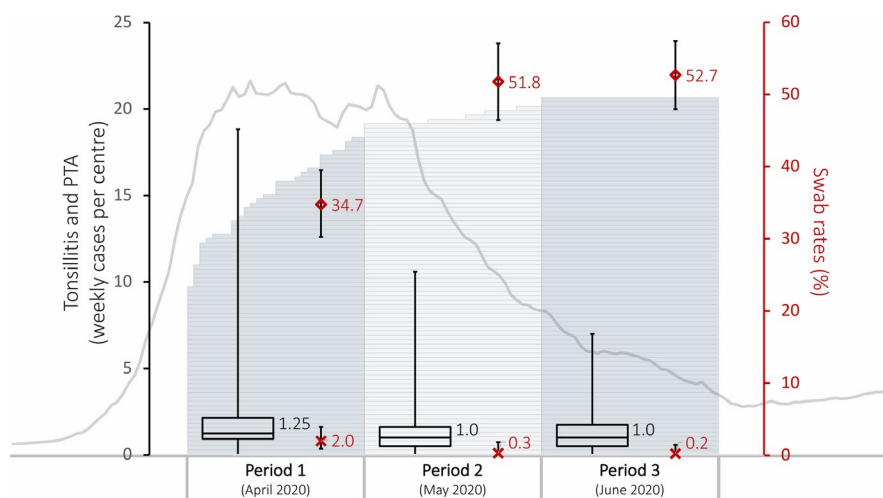
Figure 1 shows the number of patients with suspected or confirmed COVID-19, at the time of presentation and following testing, for the three audit periods, alongside the UK incidence of COVID-19.

### 3.4 | Acute management of ED patients

An oral examination was performed in 91.0% of tonsillitis patients and 91.7% of PTA patients ( $n = 678/745$  and  $n = 376/410$ ). Flexible nasendoscopy (FNE) was performed in 4.6% of tonsillitis patients and 9.5% of PTA patients ( $n = 34/745$  and  $n = 39/410$ ).

The rates of use of IV medications are shown in Tables 1 and 2. IV antibiotics were given in 79.6% of tonsillitis patients ( $n = 600/754$ ) and 89.6% of PTA patients ( $n = 370/413$ ). IV steroids were given in 67.0% of tonsillitis patients ( $n = 505/754$ ) and 73.6% of PTA patients ( $n = 304/413$ ).

Suspected PTA underwent attempted drainage in 77.2% of cases ( $n = 319/413$ ). Needle aspiration was used in 78.6% of these cases ( $n = 246/313$ ) and produced pus in 54.4% ( $n = 134/246$ ). Incision and drainage were used in 21.4% ( $n = 67/313$ ) and produced pus in



**FIGURE 1** Combination graphic to communicate trends in data over 12-week audit period: 1) The bar chart forming the background shows sequential opening of centres across the UK as the audit period progressed, 2) The box and whisker plots show the median, range and interquartile range of tonsillitis and quinsy patients presenting per centre per week for each of the three 4-week audit periods, 3) The scatter plot and error bars are COVID-19 swab rates (%) (diamonds) and positive swab rates (%) (crosses) with 95% confidence intervals, 4) The grey line chart is the 7-day rolling average of UK cases from 1 March to 31 July (available at: <https://coronavirus.data.gov.uk/cases>)

**TABLE 1** Characteristics of tonsillitis population, with proportions admitted/discharged and re-presentation rates for ED discharges (with univariable regression analysis)

Variable	Status	ED admissions % (n)	ED discharges % (n)	Re-presentation rates of ED discharges % (n)	Univariable logistic regression p value
Overall	-	45.6 (344/754)	54.4 (410/754)	9.6 (39/408)	-
Sex	Female	45.3 (196/433)	54.7 (237/433)	10.6 (25/236)	.406
	Male	46.1 (148/321)	53.9 (173/321)	8.1 (14/172)	
Age in years	Cohort	26.5	27	Re-presented vs no	.791
	Median (Range) (Interquartile range)	(18 to 86) (21 to 34)	(18 to 86) (21 to 35)	23 vs 27 (18 to 68) vs (18 to 86) (20 to 37) vs (21 to 34)	
Previous course of oral antibiotics	No	48.3 (184/381)	51.7 (197/381)	8.1 (16/197)	.342
	Yes	42.9 (160/373)	57.1 (213/373)	10.9 (23/211)	
Examinations	None	23.9 (16/67)	76.1 (51/67)	7.8 (4/51)	.679
	Yes (any)	47.8 (324/678)	52.2 (354/678)	9.7 (34/352)	
	Oral examination only	46.1 (297/644)	53.9 (347/644)	9.6 (33/345)	
	FNE only	(0/0)	(0/0)	(0/0)	
	Oral examination & FNE	79.4 (27/34)	20.6 (7/34)	14.3 (1/7)	
Swallowing fluids/ medications prior to IV medications?	No	60.1 (291/484)	39.9 (193/484)	8.8 (17/193)	.625
	Yes	19.6 (53/270)	80.4 (217/270)	10.2 (22/215)	
Swallowing fluids/ medications after IV medications?	No	97.6 (163/167)	2.4 (4/167)	0 (0/4)	.991
	Yes	38.8 (171/441)	61.2 (270/441)	7.8 (21/269)	
Statim IV medications	None	7.6 (11/144)	92.4 (133/144)	13.5 (18/133)	.125
	Yes (any)	54.6 (333/610)	45.4 (277/610)	7.6 (21/275)	
	IV antibiotics only	60.0 (63/105)	40.0 (42/105)	12.7 (30/237)	
	IV steroids only	20.0 (2/10)	80.0 (8/10)	11.1 (1/9)	
	IV antibiotics & steroids	54.1 (268/495)	45.9 (227/495)	7.1 (3/42)	
Discharge medications	None	-	(16)	12.5 (2/16)	.652
	Yes (any)	-	(374)	9.1 (34/372)	
	Oral antibiotics only	-	(350)	8.6 (30/348)	
	Oral steroids only	-	(2)	50.0 (1/2)	
	Oral antibiotics & steroids	-	(22)	13.6 (3/22)	

82.1% (n = 55/67). Using either method, pus was obtained in 60.4% (n = 189/313). The reasons for no attempt at drainage were given as follows: 63.8% following guidelines (n = 60); 14.9% patient choice (n = 14); 10.5% not trained (n = 10); 8.5% trismus (n = 8); and 2.1% suspected COVID-19 (n = 2).

The administration of IV steroids and antibiotics increased the percentage of patients able to swallow from 35.8% to 72.5% for tonsillitis (n = 270/754 and 441/608) and from 22.3% to 71.0% for PTA (n = 92/413 and 265/373).

Telephone advice only was given by way of remote management in 6.6% of tonsillitis cases (n = 50/759) and 3.6% of PTA cases (n = 15/413).

For tonsillitis cases, when seen face to face (n = 709), the majority of patients were reviewed by pre-specialty grade junior doctors (51.6%,

n = 366) followed by specialty grade junior doctors (40.2%, n = 285), consultants (6.1%, n = 43), and nurse practitioners (2.1%, n = 15).

For PTA cases, when seen face to face (n = 398), the majority of patients were reviewed by pre-specialty grade junior doctors (48.2%, n = 192) followed by specialty grade junior doctors (41.2%, n = 164), consultants (7.8%, n = 31) and nurse practitioners (2.8%, n = 11).

### 3.5 | Admission to hospital from ED

Tables 1 and 2 show the discharge rates for tonsillitis and PTA patients reviewed by ENT after presenting to the ED. The overall discharge rate was 54.4% for tonsillitis (n = 410/754) and 45.3% for PTA (n = 187/413). These data are also visualised in Figure 2.

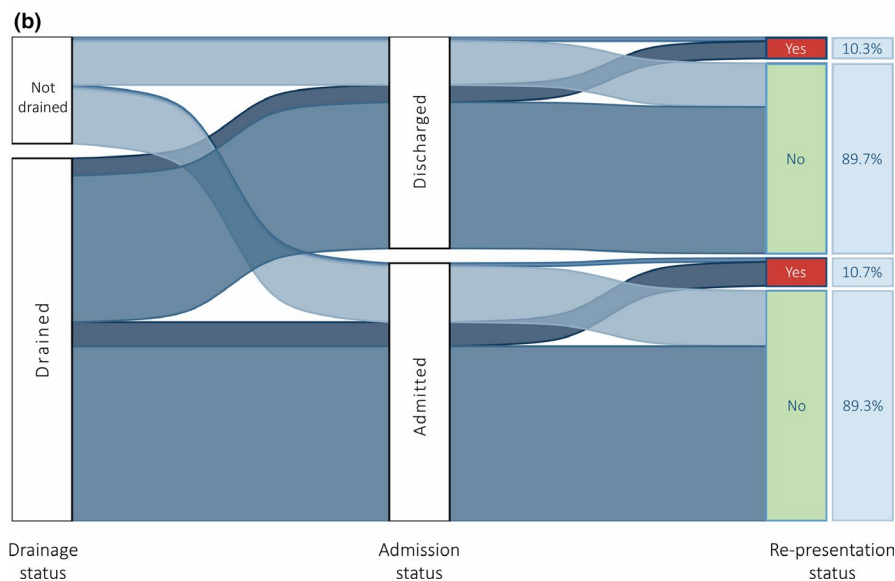
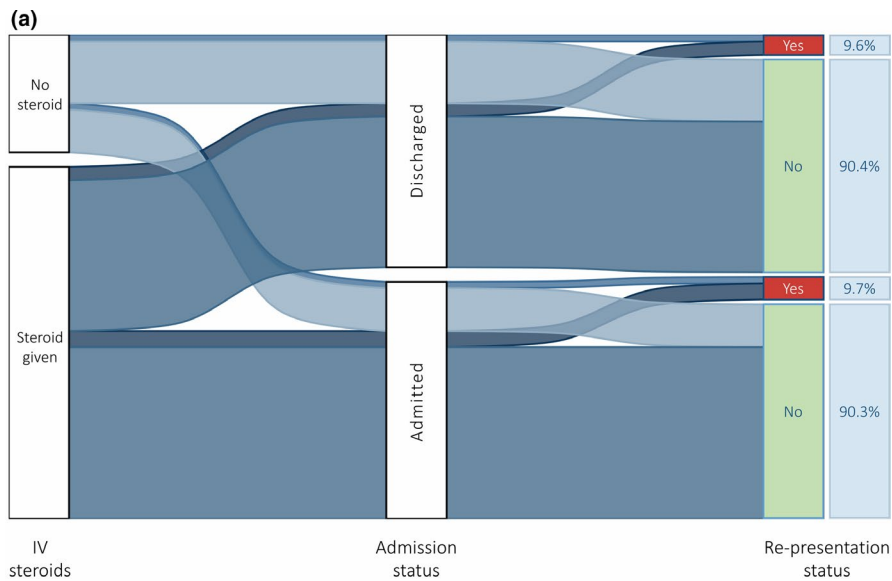
**TABLE 2** Characteristics of PTA population, with proportions admitted/discharged and re-presentation rates for ED discharges (with univariable regression analysis)

Variable	Status	ED admissions % (n)	ED discharges % (n)	Re-presentation rates of ED discharges % (n)	Univariable logistic regression p value
Overall	-	54.7 (226/413)	45.3 (187/413)	10.3 (19/184)	-
Sex	Female	58.5 (93/159)	41.5 (66/159)	6.2 (4/65)	0.178
	Male	52.4 (133/254)	47.6 (121/254)	12.5 (15/120)	
Age in years	Cohort	-	-	Re-presented vs no	0.407
	Median	31	31	31 vs 32	
	(Range)	(18 to 91)	(18 to 85)	(18 to 76) vs (18 to 85)	
	(Interquartile range)	(25 to 42.75)	(23 to 42.5)	(25 to 51.5) vs (23 to 42)	
Previous course of oral antibiotics	No	55.8 (121/217)	44.2 (96/217)	9.6 (9/94)	0.713
	Yes	53.8 (105/195)	46.2 (90/195)	11.2 (10/89)	
Examinations	None	32.4 (11/34)	67.6 (23/34)	8.7 (2/23)	0.770
	Yes (any)	56.9 (214/376)	43.1 (162/376)	10.7 (17/159)	
	Oral examination only	55.2 (186/337)	44.8 (151/337)	10.1 (15/148)	0.830
	FNE only	(0/0)	(0/0)	(0/0)	
	Oral examination & FNE	71.8 (28/39)	28.2 (11/39)	18.2 (2/11)	0.431
Swallowing fluids/ medications <b>prior</b> to IV medications?	No	63.2 (203/321)	36.8 (118/321)	11.2 (13/116)	0.609
	Yes	25.0 (23/92)	75.0 (69/92)	8.8 (6/68)	
Swallowing fluids/ medications <b>after</b> IV medications?	No	89.8 (97/108)	10.2 (11/108)	20 (2/10)	0.439
	Yes	47.9 (127/265)	52.1 (138/265)	11.6 (16/138)	
Statim IV medications	None	7.5 (3/40)	92.5 (37/40)	2.9 (1/35)	0.140
	Yes (any)	59.8 (223/373)	40.2 (150/373)	12.1 (18/149)	
	IV antibiotics only	66.7 (46/69)	33.3 (23/69)	4.3 (1/23)	0.762
	IV steroids only	0 (0/3)	100 (3/3)	0 (0/3)	
	IV antibiotics & steroids	58.8 (177/301)	41.2 (124/301)	13.8 (17/123)	0.105
Discharge medications	None	-	(17)	12.5 (2/16)	0.785
	Yes (any)	-	(167)	10.3 (17/165)	
	Oral antibiotics only	-	(155)	1.4 (2/140)	0.734
	Oral steroids only	-	(0)	(0/0)	
	Oral antibiotics & steroids	-	(12)	60.0 (15/25)	0.756
Drainage	None	54.3 (51/94)	45.7 (43/94)	9.5 (4/42)	0.846
	Yes (any)	54.9 (175/319)	45.1 (144/319)	10.6 (15/142)	
	I&D (any)	61.2 (41/67)	38.8 (26/67)	7.7 (2/26)	0.583

(Continues)

TABLE 2 (Continued)

Variable	Status	ED admissions % (n)	ED discharges % (n)	Re-representation rates of ED discharges % (n)	Univariable logistic regression p value
	Needle aspiration (any)	52.8 (130/246)	47.2 (116/246)	11.4 (13/114)	
	I&D, no pus	75.0 (9/12)	25.0 (3/12)	0 (0/3)	0.992
	I&D, Pus	58.2 (32/55)	41.8 (23/55)	8.7 (2/23)	0.912
	Needle aspiration, no pus	50.9 (57/112)	49.1 (55/112)	16.4 (9/55)	0.333
	Needle aspiration, Pus	54.5 (73/134)	45.5 (61/134)	6.8 (4/59)	0.616
	No pus (either method)	53.2 (66/124)	46.8 (58/124)	15.5 (9/58)	0.130
	Pus (either method)	55.6 (105/189)	44.4 (84/189)	7.3 (6/82)	



**FIGURE 2** Sankey chart visualising proportions of patients being admitted or discharged from the ED, with rates of subsequent re-presentation, stratified by A) IV steroid use for tonsillitis patients and B) drainage for PTA patients

**TABLE 3** Re-presentation rates and outcomes from re-presentation by condition and admission status

Cohort	Re-presentation rate% (n)	Drainage attempted after re-presentation % (n)	Admission rate after re-presentation % (n)	Admission rate after re-presentation as proportion of initial presentation management % (n)
Tonsillitis admissions	9.7 (33/341)	24.2 (8/33)	66.7 (22/33)	6.5 (22/341)
Tonsillitis discharges	9.6 (39/408)	7.7 (3/38)	50.0 (19/38)	4.7 (19/408)
PTA admissions	10.7 (24/224)	70.8 (17/24)	83.3 (20/24)	8.9 (20/224)
PTA discharges	10.3 (19/184)	63.2 (12/19)	31.6 (6/19)	3.3 (6/184)

Discharge rates from ED before and after *statim* IV medications were as follows: tonsillitis 17.6% (n = 133/754) and 44.6% (n = 277/754); PTA 9.0% (n = 37/413) and 39.9% (150/376), respectively.

Length of stay data were available for all eligible patients admitted to hospital. Patients staying  $\geq 1$  day,  $\geq 2$  days and  $\geq 3$  days were as follows: tonsillitis 61.9%, 38.1%, 14.2% (n = 213/344, 131/344 and 49/344) and PTA 61.9%, 38.1%, 12.4% (n = 140/226, 86/226 and 28/226).

### 3.6 | Planned follow-up for ED discharges

No follow-up was arranged in 71.7% of tonsillitis patients (n = 294/410) with 5.9% having face-to-face (n = 81/410) and 19.8% having telephone appointments scheduled (n = 81/410) (9 reported as "other", 2 directly listed for tonsillectomy).

No follow-up was arranged in 50.3% of PTA patients (n = 94/187) with 8.6% having face-to-face (n = 16/187) and 38.5% having telephone appointments scheduled (n = 72/187) (5 reported as "other").

### 3.7 | Unscheduled re-presentation within 10 days

Re-presentation rates and outcomes from re-presentation are shown in Table 3. Further detail for ED discharges, by patient and management factors, is shown in Tables 1 and 2. Figure 2 additionally shows re-presentation rates for tonsillitis patients being discharged from the ED receiving no IV steroid (10.2%, n = 10/98) and any IV steroid (8.1%, n = 19/234), and tonsillitis patients admitted from the ED receiving no IV steroid (12.9%, n = 9/70) and any IV steroid (8.6%, n = 23/268).

Univariable logistic regression showed no significant predictors of re-presentation within 10 days (Tables 1 and 2). No deaths were recorded.

## 4 | DISCUSSION

COVID-19 led to significant disruption of well-established standards of care, but it is increasingly recognised that these changes may have unveiled positive developments in our management of certain

conditions. This discussion focuses on lessons that can be learned from the collective national experience regarding the management of acute tonsillitis and PTA.

### 4.1 | COVID-19, tonsillitis and peritonsillar abscess

Sore throat and pharyngeal inflammation are recognised manifestations of COVID-19,<sup>10</sup> but a consistent association with acute tonsillitis has not been described. Acute tonsillitis may have a viral or bacterial aetiology, with acute bacterial tonsillitis often preceded by a viral infection.<sup>11</sup> Coronaviruses are not one of the known viral pathogens frequently contributing to acute tonsillitis.<sup>12</sup> The only comparable pre-COVID-19 presentation data comes from the UK Multicentre Audit of Quinsies (MAQ),<sup>13</sup> where the mean number of cases of PTA alone was 3.9 per centre per month (325 cases over 2 months in 42 centres). This compares to 2.0 PTA cases per centre per month during the COVID-19 audit (416 cases over 905 weeks of data across 83 centres). Given seasonal variation has limited effect,<sup>14</sup> this apparent drop in presentations may be due to the reduced spread of common viral infection with COVID-19 population measures, or a reduced willingness of patients to present to ED.<sup>15</sup>

### 4.2 | Changes to care during the COVID-19 pandemic

Acute management of tonsillitis and PTA in ED aims to reduce the proportion of patients that require admission. This practice has been advocated for several years,<sup>16,17</sup> but COVID-19 provided further pressure to clinicians to only admit cases where essential.

During the audit, clinicians discharged just over half of tonsillitis patients, and just under half of those with PTA. This represents a significant shift in practice, with historically high levels of admission for tonsillitis presenting to ENT in the UK,<sup>16,18</sup> and only 8% of PTA cases discharged from ED in 2014.<sup>13</sup>

The use of IV antibiotics and steroids in ED was common, with the majority of both tonsillitis and PTA patients receiving both. The effect of this treatment, and any concurrent analgesia, was dramatic. This management approach doubled the proportion of patients able to swallow fluids in the subgroup later deemed



suitable for discharge, with a large benefit also seen in those later admitted. This finding is in line with previous small studies that suggest IV steroids may reduce pain and trismus, facilitating earlier oral intake.<sup>19-21</sup>

Another COVID-19-provoked shift in practice has been a move away from PTA drainage (cf MAQ), with the aim of reducing clinician exposure to aerosol and droplets. Nearly, a quarter of patients with suspected PTA had no drainage performed, and this did not appear to influence the decision to admit, nor did the presence or absence of pus on incision or aspiration. There was also no difference in 10-day re-presentation rates between those drained or managed conservatively. Inevitably milder or borderline cases are more likely to have been managed conservatively in our dataset, however, a recent meta-analysis also demonstrated no difference in outcomes between patients initially treated with conservative or surgical interventions for PTA.<sup>22</sup> This audit, combined with ongoing emphasis on reducing clinician exposure to oral secretions, should promote further exploration of the role of conservative management of PTA, and outcomes associated with not draining.

Some aspects of management did not change with the introduction of COVID-19 guidelines. Avoidance of oral examination was recommended, yet 9 out of 10 patients still underwent an oral assessment. Furthermore, once patients were admitted, the length of stay for both tonsillitis and PTA was between 1 and 2 days, the same as previously found.<sup>13</sup>

### 4.3 | Drivers of clinical decision-making

The ENTUK COVID-19 guidelines suggested the decision to admit should be primarily based on the patient's ability to swallow fluids and medication, with the initial triage focusing on airway concern and sepsis, similar to other published criteria.<sup>16-18,23</sup> Unsurprisingly, the inability to swallow fluids and medications, especially after *statim* IV medications, led to admission in almost all cases. Physiological markers of sepsis were not recorded and so it is uncertain what role these played in the decision to admit.

### 4.4 | Outcomes from outpatient care

While discharging patients from ED can benefit patients and the hospital, it must be balanced against the potential harm of deterioration or complications occurring within the community. 10-day re-presentation rates were similar to or below previously reported data,<sup>16,17</sup> and considerably lower than the 30-day figure from MAQ.<sup>13</sup> For both tonsillitis and PTA cohorts, the readmission rate was low, and higher in the group initially admitted from ED. Even in those patients re-presenting, many could continue to be managed as an outpatient after further review in ED. Enhanced management within ED and early discharge therefore appears safe.

### 4.5 | Implications for clinical practice

The practice adopted across the UK during the COVID-19 epidemic has reduced admissions, and to a lesser extent reduced possible clinician exposure to patient secretions. While the decision-making process currently adopted appears safe, it is difficult from the data to fully characterise the optimal pathway or criteria for admission.

Looking for possible improvements in current management, in this audit, the 101 patients not examined did not demonstrate a higher re-presentation rate. It could therefore be argued that the continued use of patient examination by an ENT clinician is not justified, given both the risk of COVID-19 transmission, and the existence of a common management pathway for tonsillitis and PTA, with unclear benefit of PTA drainage.

Given the observational nature of this study, it is not possible to determine exactly which tonsillitis and PTA patients can be routinely managed as outpatients, but the current guidance appears to provide a sound basis for triage, probably incorporating a review of the presence of physiological markers of sepsis. It has, however, been shown that a greater proportion of patients with these conditions can be safely managed at home than has traditionally been the case.

### 4.6 | Strengths and limitations of the study

This large prospective national study gives a comprehensive report of tonsillitis and PTA management and is uniquely placed to learn from the synchronous UK-wide changes in practice brought about by the initial peak of the COVID-19 pandemic. Despite disruption to routine care, extremely high levels of data completeness were seen.

To reduce the burden on data collection during a clinically challenging time, data were not collected on physiological parameters, laboratory/imaging results and past medical history. The classification of patients as tonsillitis or PTA was solely based on clinician judgement, and some PTA treated conservatively may have not re-presented true abscesses. Re-presentations to community health care will have been missed, although these are unlikely to represent severe complications. Re-presentations beyond 10 days would also have been missed but this timeframe was chosen as a compromise between identifying the majority of instances of failed acute management and allowing rapid feedback to the ENT community via the interim reports. Finally, patient hospital-avoidance behaviour at the height of the pandemic likely raised the threshold for re-attending with milder complications.

## 5 | CONCLUSION

Presentations with tonsillitis and PTA during the initial peak of the COVID-19 pandemic were below previous rates. The management of these cases was notably different, with high rates of IV steroid use, avoidance of PTA drainage for some patients, and an overall



shift towards outpatient care. This national study highlights that many patients who may previously have been admitted to hospital following their acute assessment and management, may be safely discharged from the ED.

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## DATA AVAILABILITY STATEMENT

Research data are not shared.

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## SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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